3.1 Линейная коррекция контраста

In [1]:

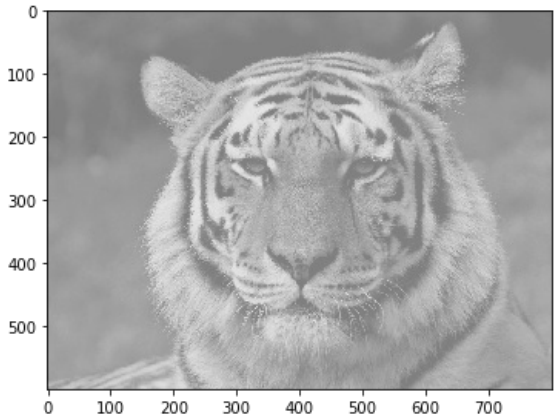
```
from skimage.io import imread, imshow
from skimage import img_as_float
%matplotlib inline
```

In [2]:

```
img = imread('tiger-low-contrast.png')
imshow(img)
```

Out[2]:

```
<matplotlib.image.AxesImage at 0x12af9da8>
```

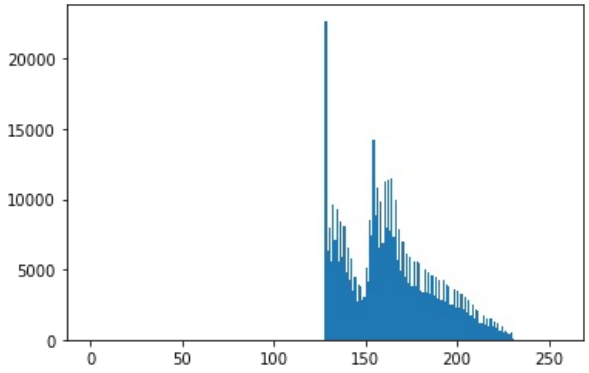


In [3]:

```
from matplotlib.pyplot import hist
```

In [4]:

```
values, bin_edges, patches = hist(img.ravel(), bins=range(257))
```



In [8]:

```
#Берется максимальный и минимальный элемент изображения
min = img.min()
max = img.max()
#По формуле применяется к каждому пикселю
for i in range(img.shape[0]):
    for j in range(img.shape[1]):
        img[i,j] -= min
        img[i,j] *= 255/(max-min)
```

In [9]:

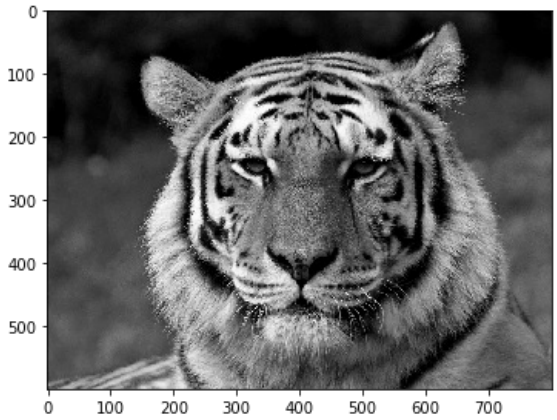
```
img = img.astype('uint8')
```

In [10]:

```
imshow(img)
```

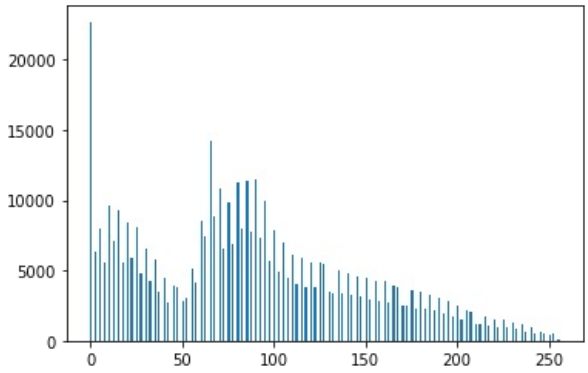
Out[10]:

```
<matplotlib.image.AxesImage at 0x1439c958>
```



In [11]:

```
values, bin_edges, patches = hist(img.ravel(), bins=range(257))
```



In [ ]:

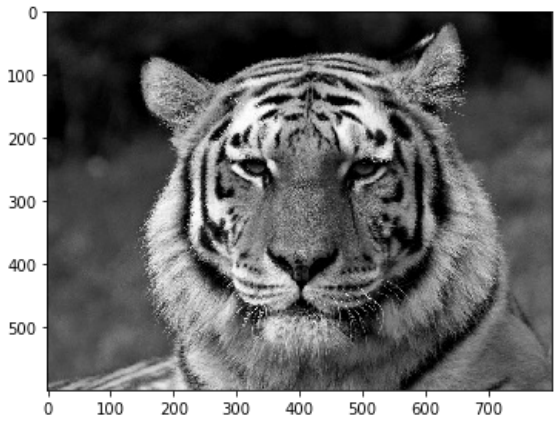
```

```

In [29]:

```
imshow(imread('tiger-high-contrast.png'))
```

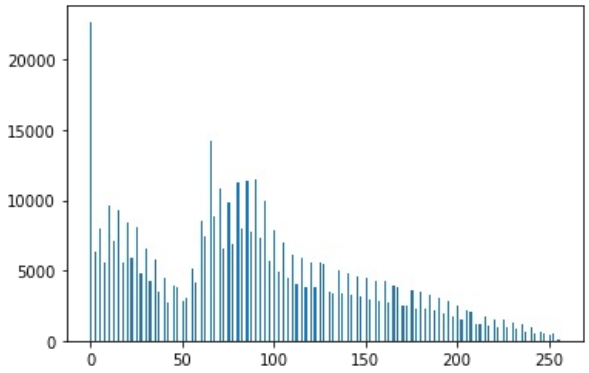
Out[29]:

```
<matplotlib.image.AxesImage at 0x13cfc868>
```



In [30]:

```
values, bin_edges, patches = hist(imread('tiger-high-contrast.png').ravel(), bins=range(257))
```



In [5]:

```
from numpy import histogram
values, bin_edges = histogram(img, bins=range(257))
```

In [59]:

```

```

In [6]:

```
values
```

Out[6]:

```
array([    0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0, 22696,  6314,  7991,  5615,  9597,  7092,  9280,
        5586,  8463,  5853,  8044,  4791,  6567,  4235,  5755,  3528,
        4430,  2667,  3941,  3825,  2790,  3047,  5116,  4173,  8553,
        7480, 14273,  8817, 10857,  6565,  9880,  6857, 11231,  7980,
       11412,  7716, 11431,  7296,  9928,  5677,  7854,  4898,  7033,
        4448,  6151,  3985,  5908,  3837,  5569,  3810,  5540,  5453,
        3529,  3419,  5019,  3369,  4846,  3259,  4606,  3136,  4475,
        2887,  4266,  2827,  4293,  2726,  3914,  3850,  2498,  2497,
        3610,  2328,  3491,  2290,  3239,  2167,  3055,  1963,  2805,
        1744,  2448,  1529,  2220,  2065,  1235,  1162,  1712,  1114,
        1490,  1000,  1478,   923,  1329,   828,  1131,   680,   986,
         529,   617,   543,   424,   532,    82,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0,     0,     0,     0,     0,     0,
           0,     0,     0,     0], dtype=int32)
```

In [7]:

```
bin_edges
```

Out[7]:

```
array([  0,   1,   2,   3,   4,   5,   6,   7,   8,   9,  10,  11,  12,
        13,  14,  15,  16,  17,  18,  19,  20,  21,  22,  23,  24,  25,
        26,  27,  28,  29,  30,  31,  32,  33,  34,  35,  36,  37,  38,
        39,  40,  41,  42,  43,  44,  45,  46,  47,  48,  49,  50,  51,
        52,  53,  54,  55,  56,  57,  58,  59,  60,  61,  62,  63,  64,
        65,  66,  67,  68,  69,  70,  71,  72,  73,  74,  75,  76,  77,
        78,  79,  80,  81,  82,  83,  84,  85,  86,  87,  88,  89,  90,
        91,  92,  93,  94,  95,  96,  97,  98,  99, 100, 101, 102, 103,
       104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116,
       117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129,
       130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142,
       143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155,
       156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168,
       169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181,
       182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194,
       195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207,
       208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220,
       221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233,
       234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246,
       247, 248, 249, 250, 251, 252, 253, 254, 255, 256])
```

In [ ]:

```

```

In [ ]:

```

```